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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,008	05/25/2006	Tomihisa Ohno	CONDA.00033	1688
22858 7590 07/28/2010 CARSTENS & CAHOON, LLP 13760 NOEL ROAD, SUITE 900 DALLAS, TX 75240				
EXAMINER DOLLINGER, MICHAEL M				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,008

Applicant(s)

OHNO ET AL.

Examiner

MIKE DOLLINGER

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marutani (JP 06-220397).
2. Marutani discloses urethane coating composition comprising an acrylic resin having hydroxyl number of 140-280 and an isocyanate prepolymer [0006]. The acrylic resin is based on monomers such as 2-hydroxyethyl (meth)acrylate, 3-hydroxypropyl (meth)acrylate, and others [0008] modified with 1-6 mol (1-6 repeating units) of ϵ -caprolactone [0009]. The disclosure of (meth) acrylate is equivalent to the explicit disclosure of acrylate and methacrylate. The inventive example contains a PLACCEL FM-2 monomer (reaction product of 1 mole of 2-hydroxyethyl methacrylate with 2 moles epsilon caprolactone) in combination with 2-hydroxyethyl methacrylate [0026]. The isocyanate prepolymer is preferably a diisocyanate like hexahydro diisocyanate, xylene diisocyanate and isophorone diisocyanate [0020]. The composition also contains a 2nd ingredient oligoester with 400-2,000 weight average molecular weight [0006] which may be the reaction product of 1-6 mol of epsilon caprolactone and an alcohol [0014] which includes triols and polyols with four or more organic functions such as pentaerythritol

[0015]. The acrylic resin, isocyanate prepolymer and oligoester each read on the claimed components (A), (B) and (C), respectively.

3. Marutani discloses a hydroxy value range of 140-280 which overlaps the claimed range of 125-145. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior a *prima facie* case of obviousness exists *In re Wertheim*, 541 F.2d 257, 1911 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

4. If Applicant argues that the claimed embodiments are not disclosed with sufficient specificity and that examiner is picking and choosing with improper hindsight, Examiner notes that mere fact that a reference suggests a multitude of possible combinations does not in and of itself make any one of those combinations less obvious. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

5. Claims 1, 3, 4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriya et al (US 5,821,315) in view of Marutani (JP 06-220397).

6. Moriya discloses compositions useful as paints comprising a vinyl copolymer comprised of lactone modified acrylic monomer and other monomer and a blocked polyisocyanate [abstract]. Examples of the vinyl copolymer include A3 which comprises PURAKUSERU (PLACCEL) FM-2 which is the reaction product of 2 mol ϵ -caprolactone and 1 mol of 2-hydroxyethyl methacrylate, 2-hydroxyethyl methacrylate and other acrylate monomers [Table 2]. A3 has a hydroxy group value of 140 mgKOH/g [Table 2].

The vinyl polymer reads on claimed components (A). The paints include a blocked isocyanurate of hexamethylene diisocyanate or isophorone diisocyanate [Table 3] which reads on claimed component (B). A steel sheet [column 10 line 65] was coated with the inventive paints which were hardened (cured) by heating at 140°C for 40 minutes [column 11 lines 4-10]. This heat curing causes the isocyanates to become unblocked, so these polyisocyanates will read on the "liberated isocyanate groups" of claims 8 and 9.

7. Regarding claim 3, the caprolactone modified 2-hydroxyethyl methacrylate A3 may alternatively be a lactone modified 2-hydroxyethyl acrylate or other hydroxyalkyl acrylate [column 3 lines 18-20].

8. Regarding claim 4, the vinyl copolymer A3 contains 3.9% by weight of acrylic acid [Table 2] which may alternatively be cyclohexyl (meth)acrylate, styrene or styrene derivatives [column 3 lines 38-45].

9. Regarding claims 6 and 10, Moriya does not disclose a vinyl copolymer that reads on claim 1 with an acid number of 3 mg KOH/g or less. However, Moriya does disclose that the acid value of the vinyl copolymer should be 0-40 mgKOH/g [column 4 lines 20-23], which fully encompasses the claimed range. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990), *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997).

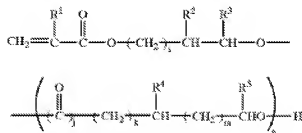
10. Moriya does not disclose the claimed component (C).

11. Marutani, discussed above, disclose a coating composition comprising acrylic resin, isocyanate prepolymer and oligoester according to the claims. Marutani teach that the addition of the oligoester 2nd ingredient helped to prevent viscosity of the paint becoming too high and henceforth achieving good operability [0050] while maintaining the outstanding acid resistance and raising the abrasion resistance of the paint [0049].

12. It would have been obvious to one having ordinary skill in the art the time the invention was made to have prepared a coating compositions comprising an acrylic resin polyol, a polyisocyanate and a lactone polyol because Moriya teach that it is within the skill of the art to prepare a coating composition comprising an acrylic resin polyol and a polyisocyanate and Marutani teach that it is within the skill of the art to add an oligoester polyol prepared from caprolactone to an acrylic polyol containing polyurethane coating composition. One would have been motivated to add the oligoester of Marutani to the coating composition of Moriya because Marutani teach that the addition of the oligoester maintains low viscosity/ highly operable coatings while maintaining the advantageous properties of acrylic polyol containing polyurethane coatings. Absent any evidence to the contrary, there would have been a reasonable expectation of success in adding the oligoester of Marutani to the coating composition of Moriya.

13. Claims 1, 3, 4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al (WO 96/34064, hereinafter all references are made

14. Hayakawa et al discloses a thermoset paint composition comprising (a) a fluorine containing copolymer of fluoro-olefin, hydroxyl group containing vinyl based monomer and other vinyl based monomer having a hydroxy group value between 60 and 150 mgKOH/g [column 2 lines 34-39], (b) a vinyl based (co)polymer comprising a monomer represented by the general formula 1:



wherein $n = 0-10$ and the (co)polymer has a hydroxy group value between 60 and 150 mgKOH/g [column 2 lines 40-46; 55-60], and (d) a blocked polyisocyanate compounds [column 2 lines 49-50]. The hydroxyl group containing vinyl based monomer of component (a) may be lactone modified 2-hydroxyalkyl (meth)acrylate, e.g. ϵ -caprolactone modified 2-hydroxyethyl (meth)acrylate [column 4 lines 3-10]. The other vinyl based monomer of component (a) may be 2-hydroxyethyl (meth)acrylate [column 4 line 40] and monomers with a cyclic backbone such as cycloalkyl ester of (meth)acrylic acid [column 4 line 34], styrene [column 4 line 41], cyclohexyl vinyl ether [column 4 line 44], and combinations of two or more [column 4 line 46]. The monomer of component (b) represented by formula 1 is also a lactone modified vinyl based monomer such as modified 2-hydroxyalkyl (meth)acrylate, e.g. ϵ -caprolactone modified 2-hydroxyethyl

(meth)acrylate [column 5 lines 54-63]. Other vinyl based monomers in component (b) include 2-hydroxyethyl (meth)acrylate [column 6 line 7] and monomer with a cyclic backbone including cycloalkyl ester of (meth)acrylic acid [column 6 line 1], styrene [column 6 line 7], and combinations of two or more [column 6 line 10-12]. Components (a) and (b) each read on the claimed (meth)acrylic resin (A).

15. Since $n = 0-10$ in formula 1, there are between 0 and 10 caprolactone repetitive units in the lactone modified hydroxyalkyl (meth)acrylate. This range completely encompasses the claimed range of 2-3 lactone units per modified hydroxyalkyl (meth)acrylate. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990), *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997).

16. Regarding claim 3, the disclosure of caprolactone modified 2-hydroxyethyl (meth)acrylate is considered the explicit disclosure of caprolactone modified 2-hydroethyl methacrylate and caprolactone modified 2-hydroxyethyl acrylate.

17. Regarding claim 4, example polymers AC-2 and AC-3 have cyclohexyl methacrylate in the monomer mixture in an amount of 10 weight percent and 5 weight percent, respectively [Table 2].

18. Regarding claims 8 and 9, the blocked polyisocyanate compounds are capable of forming urethane bonds [column 3 lines 9-10; 23-24]. In order to form urethane bonds the isocyanate groups must be "liberated" from the blocking agent. Additionally, curing

of the coating composition occurs at elevated temperature for an extended period of time [column 8 lines 59-63] indicating a process of "liberating" the isocyanate functional groups from the blocking agents.

19. Marutani, discussed above, disclose a coating composition comprising acrylic resin, isocyanate prepolymer and oligoester according to the claims. Marutani teach that the addition of the oligoester 2nd ingredient helped to prevent viscosity of the paint becoming too high and henceforth achieving good operability [0050] while maintaining the outstanding acid resistance and raising the abrasion resistance of the paint [0049].

20. It would have been obvious to one having ordinary skill in the art the time the invention was made to have prepared a coating compositions comprising an acrylic resin polyol, a polyisocyanate and a lactone polyol because Hayawaka teach that it is within the skill of the art to prepare a coating composition comprising an acrylic resin polyol and a polyisocyanate and Marutani teach that it is within the skill of the art to add an oligoester polyol prepared from caprolactone to an acrylic polyol containing polyurethane coating composition. One would have been motivated to add the oligoester of Marutani to the coating composition of Hayakawa because Marutani teach that the addition of the oligoester maintains low viscosity/ highly operable coatings while maintaining the advantageous properties of acrylic polyol containing polyurethane coatings. Absent any evidence to the contrary, there would have been a reasonable expectation of success in adding the oligoester of Marutani to the coating composition of Hayakawa.

21. If Applicant argues that the claimed embodiments are not disclosed with sufficient specificity and that examiner is picking and choosing with improper hindsight, Examiner notes that mere fact that a reference suggests a multitude of possible combinations does not in and of itself make any one of those combinations less obvious. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

Response to Arguments

22. Applicant's arguments filed 07/09/2010 have been fully considered but they are not persuasive.

23. Applicants argue that the oligoester of Marutani does not read on the claimed lactone tetraol because the oligoester is prepared from epsilon-caprolactone and a polyhydroxylic alcohol but that no polyhydroxylic alcohol having four hydroxyl groups is disclosed. This argument is not convincing. The polyhydroxylic alcohol includes alcohols with four hydroxyl groups including pentaerythritol [0015] as cited by the examiner.

24. Applicants argue that the acrylic resin of Marutani does not read on the claimed acrylic resin (A) because the disclosed acrylic resin has an hydroxyl number of 140 to 280 which has only an overlap of 5 with the claimed hydroxyl number 125 to 145. Applicants also argue that the optimum range of the disclosed hydroxyl number is greater than the claimed range. Applicants also argue that Examiner has to explain where Marutani teaches or discloses the number of caprolactone repetitive units in the

acrylic resin. This argument is not convincing. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior a *prima facie* case of obviousness exists *In re Wertheim*, 541 F.2d 257, 1911 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). The size of the overlap between disclosed and claimed ranges is not relevant to patentability, even if the overlap is only at one point. Applicants' arguments regarding the higher preferred range of hydroxyl number amount to a contention that the claimed element is a nonpreferred embodiment of the prior art. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments, see *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments, see *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Regarding the Applicants' arguments towards the caprolactone units in the acrylic polymer, Examiner cited that the acrylic resin is based on monomers such as 2-hydroxyethyl (meth)acrylate, 3-hydroxypropyl (meth)acrylate, and others [0008] **modified with 1-6 mol (1-6 repeating units) of ϵ -caprolactone** [0009] and that the inventive example contains a PLACCEL FM-2 monomer (reaction product of 1 mole of 2-hydroxyethyl methacrylate with **2 moles epsilon caprolactone**) in combination with 2-hydroxyethyl methacrylate [0026].

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MIKE DOLLINGER** whose telephone number is (571)270-5464. The examiner can normally be reached on **M-F 9-5:30**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/mmd/

/RANDY GULAKOWSKI/
Supervisory Patent Examiner, Art Unit 1796